

## The Energy Spectrum of Jovian Electrons in Interplanetary Space

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In this paper we report on the energy spectrum of electrons with energies  $\sim 10$  to  $\sim 180$  MeV measured with the electron telescope on the Voyager 1 and 2 spacecraft [Stone *et al.*, 1977] in interplanetary space from 1978 to 1983. The kinetic energy of electrons is determined by double  $dE/dx$  measurements from the first two detectors ( $D_1$ ,  $D_2$ ) of a stack of eight solid state detectors and by the range of particle penetration into the remaining six detectors ( $D_3$  to  $D_8$ ) which are interleaved with tungsten absorbers.

From 1978 to 1983 (radial range  $\sim 2$  to  $\sim 12$  AU) electrons of jovian origin were clearly observable for electrons stopping in  $D_3$  ( $E \geq 4$  MeV) and in  $D_4$  ( $E \geq 8$  MeV). For electrons stopping in  $D_5$  ( $E \geq 12$  MeV), the jovian flux dominated the galactic electron flux for a period of approximately one year near the encounter with Jupiter [Christon *et al.*, 1985]. Jovian electrons were also observed in  $D_6$  ( $E \geq 21$  MeV) but not in  $D_7$  ( $E \geq 28$  MeV). A detailed interpretation of the electron variations in all energy channels depends on an accurate subtraction of background induced by energetic protons of a few 100 MeV. This subtraction is facilitated by laboratory calibration results at several energies. Further results on the differential energy spectrum of jovian electrons and limits on the maximum detected energies will be reported.

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### References

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